

WHAT IS CLAIMED IS:

1. A method for improving burst acquisition in a digital communication device comprising:  
receiving a signal; and  
performing a sync word search on said signal;  
wherein said sync word search includes performing a hybrid synchronization technique, said hybrid synchronization technique including both a lower order modulation detection and correlation process, and a higher order modulation detection and correlation process.
2. The method of claim 1, wherein said lower order modulation detection and correlation process comprises performing a biphase shift keying (BPSK) sync word correlation process.
3. The method of claim 1, wherein said higher order modulation detection and correlation process comprises performing a quadrature phase shift keying (QPSK) sync word correlation process.
4. The method of claim 1, further comprising using a result of said higher order modulation detection and correlation process to modify a result of said lower order modulation detection and correlation process.
5. The method of claim 4, wherein said result of said higher order modulation detection and correlation process is utilized to supersede a result of said lower order modulation detection and correlation process.
6. The method of claim 5, further comprising:  
comparing a result from a DBPSK correlation to a result from a CQPSK correlation;  
and

if said result from said CQPSK correlation comprises a CQPSK sync word result, using said CQPSK sync word correlation result to demodulate said burst.

7. The method of claim 6, further comprising using a sync word result from said DBPSK correlation if said result from said CQPSK correlation is not a sync word result.

8. The method of claim 1, further comprising performing said lower order modulation detection and correlation process prior to said higher order modulation detection and correlation process.

9. The method of claim 1, further comprising performing a squelching function on said received signal prior to said sync word search.

10. The method of claim 1, wherein said sync word search is not performed until a multi-step burst detection process detects a burst.

11. A method for improving burst detection in a digital receiver device, comprising:

receiving a signal; and  
performing a multi-step burst detection process on said signal.

12. The method of claim 11, wherein said multi-step burst validation process comprises:

measuring a signal energy;  
comparing said signal energy to a designated signal energy threshold value;  
measuring a signal carrier to noise plus interference ratio (CIR);  
comparing said CIR measurement to a designated CIR threshold value; and  
signaling a valid burst detection if said signal energy exceeds said designated signal energy threshold value for a first predetermined period of time and said CIR exceeds said designated CIR threshold value for a second predetermined period of time.

13. The method of claim 12, wherein said designated signal energy threshold value comprises a first signal energy threshold that is utilized to detect a presence of said signal if said signal is currently undetected, and a second signal energy threshold that is utilized to detect the absence of said signal if said signal is currently detected.

14. The method of claim 12, wherein said designated CIR threshold value comprises a first CIR threshold that is utilized to detect the presence of said signal if said signal is currently undetected, and a second CIR threshold that is utilized to detect the absence of said signal if said signal is currently detected.

15. The method of claim 12, wherein said first and second predetermined periods of time comprise a majority of an expected burst duration.

16. A digital communications system comprising:  
a tuner; and  
a demodulator;  
wherein said demodulator is configured to receive a signal and perform a hybrid sync word search on said signal, said hybrid synchronization technique including both a lower order modulation detection and correlation process, and a higher order modulation detection and correlation process.

17. The digital communications system of claim 16, wherein said lower order modulation detection and correlation process comprises a biphase shift keying (BPSK) sync word correlation process and said higher order modulation detection comprises a quadrature phase shift keying (QPSK) sync word correlation process.

18. The digital communications system of claim 16, wherein said system is further configured to use a result of said higher order modulation detection and correlation process to modify a result of said lower order modulation detection and correlation process.

19. The digital communications system of claim 16, wherein said demodulator is further configured to perform said lower order modulation detection and correlation process prior to said higher order modulation detection and correlation process.

20. The digital communications system of claim 16, wherein said demodulator is further configured to perform a squelching function on said received signal prior to said sync word search.

21. The digital communications system of claim 16, wherein said demodulator is further configured to perform said sync words search only after a multi-step burst detection process detects a burst.

22. A digital communications system comprising:  
a tuner; and  
a demodulator;  
wherein said demodulator is configured to receive a signal and perform a multi-step burst validation process on said received signal.

23. The digital communications system of claim 22, wherein said multi-step burst validation process comprises:

measuring a signal energy;  
comparing said signal energy to a programmable signal energy threshold value;  
measuring a signal carrier to noise plus interference ratio (CIR);  
comparing said CIR measurement to a programmable CIR threshold value; and  
signaling a valid burst detection if said signal energy exceeds said designated signal energy threshold value for a first predetermined period of time and said CIR exceeds said designated CIR threshold value for a second predetermined period of time.

24. The digital communications system of claim 23, wherein said programmable signal energy threshold value comprises a first signal energy threshold that is utilized to detect a presence of said signal if said signal is currently undetected, and a second signal

energy threshold that is utilized to detect the absence of said signal if said signal is currently detected.

25. The digital communications system of claim 23, wherein said programmable CIR threshold value comprises a first CIR threshold that is utilized to detect the presence of said signal if said signal is currently undetected, and a second CIR threshold that is utilized to detect the absence of said signal if said signal is currently detected.

26. The digital communications system of claim 23, wherein said first and second predetermined periods of time comprise a majority of an expected burst duration.

27. The digital communications system of claim 22, wherein said system comprises a digital receiver.